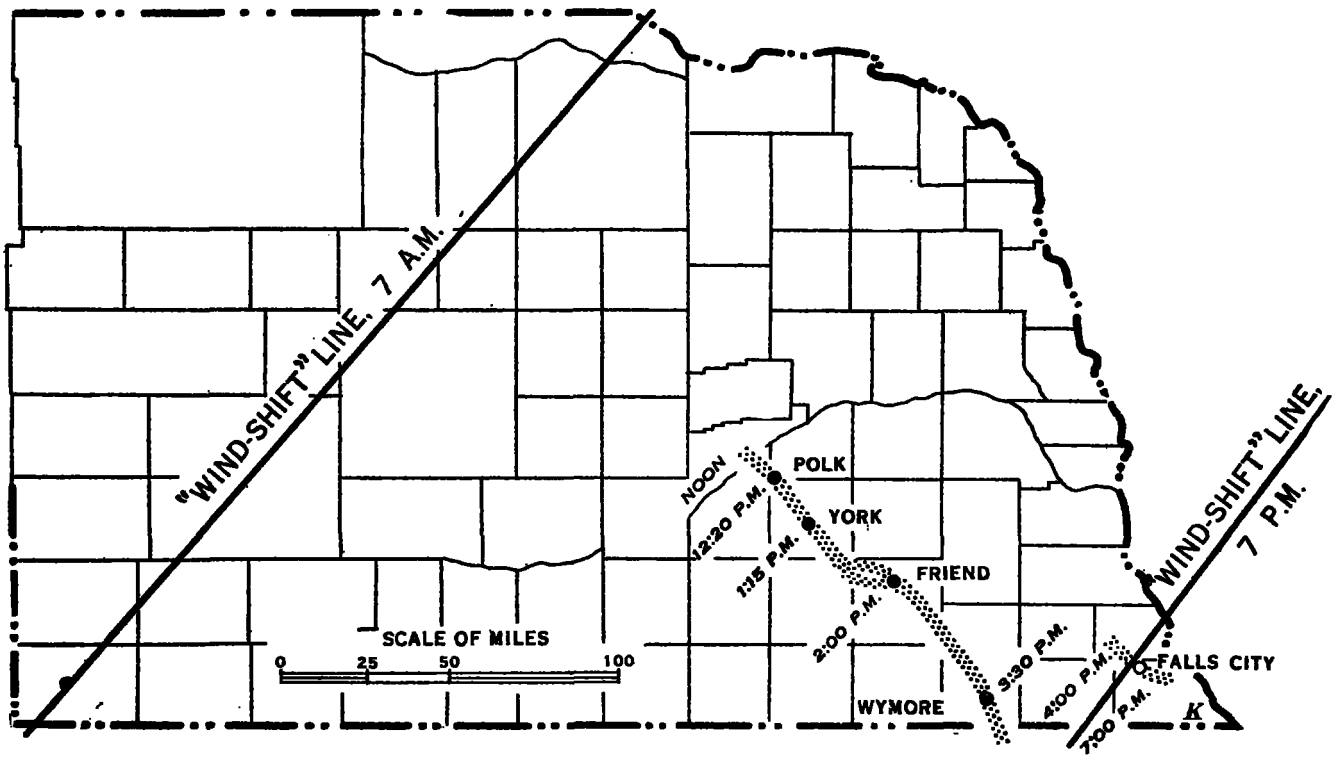

FIG. 1.—Map of eastern Nebraska, showing path of the destructive hailstorm of Aug. 8, 1917, with times of arrival at successive points.

sized hail fell immediately after the change in the wind, followed by smaller hail which fell in enormous quantities for 10 minutes or 15 minutes. Some rain accompanied the hail and continued falling for some time after the hail stopped. The total precipitation exceeded 1.00 inch (water) over most of the storm area.

The storm path is shown in figure 1 from the point of first occurrence in Merrick County, north of Central City, about noon, southeastward, progressing at the rate of about 25 miles an hour, until it reached northern Kansas at about 4 p. m. The writer believes that as the trough of low pressure shown on the weather map of August 8, 7 a. m. (Central Time), passed eastward, the hail came with the shift of wind upon the advent of the energetic HIGH closely following the trough of moderately low pressure. This trough extended across the State from southwest to northeast and the "wind-shift" line reached the northernmost points of the hail region first. The hail was propagated southward along the advancing line of contact between the cool and the warm air currents which was revealed by the violent commotion in the clouds noticed by observers. These conditions moved eastward with the general cyclonic area of which they were a part, resulting in the southeasterly trend of the hail path, and were not, as many people supposed, a definite cloud mass or small cyclonic area eight or ten miles wide moving in a southeasterly direction.

It is common for summer thunderstorms in Nebraska to occur along the "wind-shift" line in a trough of low pressure as outlined for this hailstorm. As this trough passed over Nebraska the rainfall was light, except in connection with the hailstorms. Similar conditions developed in other parts of this trough. Small severe hailstorms were reported in Kansas, and one 13 miles in length in Nemaha and Richardson Counties, Nebr. The latter reached Falls City at 7 p. m. just as the trough of low pressure passed, and the wind shifted to the north on the advent of the HIGH.

VAPOR PRESSURE OF ICE.[1]

551.57:
551.467

By S. WEBER.

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The object of these experiments was to investigate the vapor pressure of ice at very low temperatures and to obtain, if possible, new foundations for the truth of formulas showing the dependence of vapor pressure on temperature. The principal difficulty in such measurements is the fact that at very low temperatures the vapor pressure becomes extremely small, e. g.:

Temperature, °C.	Vapor pressure of ice. mm. of Hg.
0	4. 579
−25	0. 480
−63	0. 003
−98	0. 000015

and previous results are not to be relied on below 60° C. [−60° C?.] A statistical method was adopted, the pressure being measured by an absolute manometer, which was sensitive to a difference of pressure of 0.001 dyne/cm², and a Wollaston hot-wire manometer. Special care was taken to have the necessary correction for thermomolecular pressure as small as possible. Control measurements were made with a mercury manometer, temperatures being registered by a platinum-resistance thermometer. The water used was obtained partly by repeated distillation, partly by synthesis.

Experiments were conducted at temperatures from −22° to −193° C. The results were placed in a number of tables and are found to agree very well with the vapor-pressure formula due to Nernst:

$$\log p(\text{mm.Hg}) = -2611.7/T + 1.75 \log T - 0.00210\,T + 6.5343.$$

—*T.B[arratt]*.

[1] Kongl. danske vidensk. selskabs forh., 1916, p. 459. Ztschr. f. Instrumentenk., Beibl. Mar. 1, 1917, 5:41–43.